

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of the claims in the application:

1-8. (Cancelled)

9. (Previously presented) An apparatus comprising:

(a) a radio frequency tag including an integrated circuit package containing at least tag electronic circuitry, a tag power supply integrated with said tag electronic circuitry, and a tag antenna operatively coupled to the integrated circuit package;

(b) a magnetic material providing an article surveillance response in the presence of an interrogating field; and

(c) the radio frequency tag communicating information by modulating reflectance characteristics of the tag antenna, wherein the integrated circuit package comprises a semiconductor device containing the tag electronic circuitry and the tag power supply, and the tag antenna comprises an antenna element electrically connected to the semiconductor device, and wherein a further antenna element cooperates with the first-mentioned antenna element to form the tag antenna, the further antenna element comprising said magnetic material coated with an electrically conducting material.

10. (Previously presented) An apparatus comprising:

(a) a radio frequency tag including an integrated circuit package containing at least tag electronic circuitry, a tag power supply integrated with said tag electronic circuitry, and a tag antenna operatively coupled to the integrated circuit package;

(b) a magnetic material providing an article surveillance response in the presence of an interrogating field; and

(c) the radio frequency tag communicating information by modulating reflectance characteristics of the tag antenna, wherein the integrated circuit package comprises a semiconductor device containing the tag electronic circuitry and the tag power supply, and the tag antenna comprises an antenna element electrically connected to the semiconductor device, and wherein the tag antenna comprises a patch antenna electrically connected to the semiconductor device, the patch antenna having a ground plane, wherein the patch antenna comprises said magnetic material coated with an electrically conducting material.

11. (Cancelled)

12. (Previously presented) An apparatus comprising:
- (a) a radio frequency transponder including a transponder chip containing at least chip electronic circuitry and a chip power supply, and a transponder antenna connected to the transponder chip;
 - (b) a magnetic material providing a response in the presence of an interrogating field; and
 - (c) the radio frequency transponder communicating information by modulating reflectance characteristics of the transponder antenna, wherein the tag antenna comprises a patch antenna electrically connected to the transponder chip, the patch antenna having a ground plane, wherein the patch antenna comprises said magnetic material coated with an electrically conducting material.
13. (Cancelled)
14. (Previously presented) An apparatus comprising:
- (a) a radio frequency tag including an integrated circuit semiconductor device containing at least tag electronic circuitry and a tag power supply, and a tag antenna connected to the semiconductor device;
 - (b) a magnetic material providing a response in the presence of an interrogating field; and
 - (c) the radio frequency tag communicating information by modulating reflectance characteristics of the tag antenna, wherein the tag antenna comprises an antenna element electrically connected to the semiconductor device, wherein a further antenna element cooperates with the first-mentioned antenna element to form the tag antenna, the further antenna element comprising said magnetic material coated with an electrically conducting material.
15. (Cancelled)

16. (Previously presented) An apparatus comprising:
- (a) a radio frequency tag including an integrated circuit package containing at least tag electronic circuitry and a tag power supply, and a tag antenna connected to the integrated circuit package;
 - (b) a magnetic material providing an article surveillance response in the presence of an interrogating field; and
 - (c) the radio frequency tag communicating information by modulating reflectance characteristics of the tag antenna, wherein the tag antenna comprises said magnetic material coated with an electrically conducting material.
17. (Previously presented) The apparatus of Claim 16, wherein the tag antenna comprises a patch antenna electrically connected to the integrated circuit package.
18. (Previously presented) The apparatus of Claim 17, wherein the patch antenna further comprises a ground plane.
19. (Previously presented) The apparatus of Claim 17, wherein the patch antenna comprises a dielectric sheet having a first side and a second side, a first electrically conducting material attached to the first side, and a second electrically conducting material attached to the second side, wherein the semiconductor device is electrically connected to the first electrically conducting material and the second electrically conducting material, and wherein the magnetic material is attached to the dielectric sheet.

20. (Previously presented) An apparatus comprising:

(a) a radio frequency transponder including an integrated circuit package containing at least transponder electronic circuitry and a transponder power supply, and a transponder antenna connected to the integrated circuit package;

(b) a magnetic material providing a response in the presence of an interrogating field; and

(c) the radio frequency transponder communicating information by modulating reflectance characteristics of the transponder antenna, wherein the transponder antenna comprises said magnetic material coated with an electrically conducting material.

21. (Previously presented) The apparatus of Claim 20, wherein the transponder antenna comprises a patch antenna electrically connected to the integrated circuit package.

22. (Previously presented) The apparatus of Claim 21, wherein the patch antenna further comprises a ground plane.

23. (Previously presented) The apparatus of Claim 21, wherein the patch antenna comprises a dielectric sheet having a first side and a second side, a first electrically conducting material attached to the first side, and a second electrically conducting material attached to the second side, wherein the semiconductor device is electrically connected to the first electrically conducting material and the second electrically conducting material, and wherein the magnetic material is attached to the dielectric sheet.

24-34. (Cancelled)

35. (Currently amended) ~~The apparatus of Claim 34,~~ An apparatus comprising:

(a) a radio frequency tag including an integrated circuit semiconductor device containing at least tag electronic circuitry and a tag power supply, and a tag antenna connected to the semiconductor device;

(b) a magnetic material providing a response in the presence of an interrogating field; and

(c) the radio frequency tag communicating information by modulating reflectance characteristics of the tag antenna;

wherein the tag antenna comprises an antenna element electrically connected to the semiconductor device; and

wherein a further antenna element cooperates with the first-mentioned antenna element to form the tag antenna, the further antenna element comprising said magnetic material coated with an electrically conducting material.

36-38. (Cancelled)

39. (Currently amended) ~~The apparatus of Claim 38,~~ An apparatus,
comprising:

a radio frequency (RF) transponder (tag), the RF tag comprising a tag antenna,
tag electronics for storing information in a codable and recodable memory and for
communicating information to a base station by modulating reflectance characteristics
of the tag antenna, and a tag power supply; and

a non-linear magnetic material operably associated with said RF tag, the non-
linear magnetic material generating a varying electronic article surveillance magnetic
field when the non-linear magnetic material is in a magnetic field;

wherein said magnetic field is sinusoidally varying with a frequency f_0 , the
electronic article surveillance magnetic field varying with a frequency having higher
harmonics of f_0 .

40. (Currently amended) ~~The apparatus of Claim 38,~~ An apparatus,
comprising:

a radio frequency (RF) transponder (tag), the RF tag comprising a tag antenna,
tag electronics for storing information in a codable and recodable memory and for
communicating information to a base station by modulating reflectance characteristics
of the tag antenna, and a tag power supply; and

a non-linear magnetic material operably associated with said RF tag, the non-
linear magnetic material generating a varying electronic article surveillance magnetic
field when the non-linear magnetic material is in a magnetic field;

wherein the tag antenna comprises the non-linear magnetic material.

41. (Previously presented) The apparatus of Claim 40, wherein the tag
antenna comprises a first wire electrically connected to a semiconductor device
incorporating the tag electronics.

42. (Previously presented) The apparatus of Claim 41, wherein the first wire comprises non-linear magnetic material.

43. (Previously presented) The apparatus of Claim 42, wherein the non-linear magnetic material is coated with an electrically conducting material.

44. (Previously presented) The apparatus of Claim 41, wherein a second wire cooperates with the first wire to form the tag antenna, the second wire comprising non-linear magnetic material.

45. (Previously presented) The apparatus of Claim 44, wherein the non-linear magnetic material is coated with an electrically conducting material.

46. (Previously presented) The apparatus of Claim 41, wherein the tag antenna comprises a patch antenna electrically connected to a semiconductor device incorporating the tag electronics, the patch antenna having a ground plane.

47. (Previously presented) The apparatus of Claim 46, wherein the non-linear magnetic material is coated with an electrically conducting material.

48-49. (Canceled)